

Science Update

Toxin To Get Competition From a Nontoxic Cousin

Under a cooperative research and development agreement, ARS and Gustafson, Inc., of Plano, Texas, will develop a new approach farmers could use to keep aflatoxin out of peanuts. Certain strains of *Aspergillus* make this toxin. In a bad year it can cost peanut growers millions of dollars in losses. But ARS scientists discovered and patented *Aspergillus* strains that do not produce aflatoxin. Spreading these harmless strains in the soil crowds out the aflatoxin makers. Gustafson and ARS will cooperate in field tests to develop ways to mass-produce and deliver the harmless fungi as a commercial product. *Richard J. Cole, USDA-ARS National Peanut Research Laboratory, Dawson, Georgia; phone (912) 995-4481.*

Eastern Europe Gets Demos of U.S. Biocontrols

This spring, farmers in Poland and the Czech Republic will see new, U.S.-developed alternatives to conventional insecticides for controlling Colorado potato beetles. Led by ARS, scientists will set up small field plots demonstrating new controls, such as beneficial bacteria, fungi, wasps, predator bugs, and nematodes. Other pest-killing approaches may be used, including an experimental photoactive dye and genetically engineered potato plants. All the methods are used in or being developed for commercial U.S. agriculture, and all but the bacteria have links to ARS research. Colorado potato beetles are native to the western states and Mexico. They are the potato's worst insect pest in the United States and eastern Europe. U.S. farmers spend about \$150 million a year to check them.

In eastern Europe, heavy use of chemical pesticide has contributed to environmental degradation. To carry out the demonstration project, ARS and the U.S. Environmental Protection Agency set up a consortium. It

KEITH WELLER



Colorado potato beetle.

includes several commercial firms along with the National Potato Council and the New Jersey Department of Agriculture. Demo plots—near Poznan, Poland, and Prague, Czech Republic, and at ARS' Beltsville (Maryland) Agricultural Research Center—will use various combinations of the nature-friendly controls. *Richard Soper, USDA-ARS International Research Programs, Beltsville, Maryland, phone (301) 504-5605; Robert Schroder, USDA-ARS Insect Biocontrol Laboratory, Beltsville, Maryland; phone (301) 504-8369.*

Follow-Up Trip to Kazakhstan Yields Potential Apple Bonanza

Plant explorers who collected more than 60,000 apple seeds from rare, wild trees in Central Asia last summer say the material contains a potential genetic bonanza for breeders looking for better flavor, disease resistance, and other traits. "This was the most successful collecting trip we've made to the Kazakhstan region, based on our field observations of the apples growing in their

natural habitat," said ARS scientist Philip Forsline.

The trip by Forsline and two colleagues from the University of Minnesota and University of Calgary was the third in a series to Central Asia, where the modern domestic apple is thought to have originated. The scientists collected seed and cuttings from the wild species *Malus sieversii*. It's a forerunner of the domestic apple, *M. x domestica*, which includes Red and Golden Delicious, McIntosh, Granny Smith, and other popular varieties. One of the richest collecting sites was in Tarbagatai, not previously visited by the team. Tarbagatai, where winter temperatures dip to minus 40°F, is the northernmost limit of *M. sieversii*. So the new germplasm could someday extend apple growing farther north on this continent.

JAMES LUBY



ARS horticulturist Philip Forsline (left) and Cornell University taxonomist Elizabeth Dickson collect apple germplasm in Kazakhstan.

In Tarbagatai, the researchers found the biggest apples—up to 3 inches in diameter. Other preliminary signs show commercial potential of the Tarbagatai germplasm: 96 percent of the apples were red to partially red, 67 percent were firm, 84 percent had a pleasant, aromatic flavor, and 70 percent were free of scab, a fungal disease. *Philip L. Forsline, USDA-ARS Plant Genetic Resources Unit, Geneva, New York; phone (315) 787-2390.*